INTERSTATE COMMERCE COMMISSION.

REPORT OF THE CHIEF INSPECTOR OF SAFETY APPLIANCES COVERING HIS INVESTIGATION OF A COLLISION WHICH OCCURRED ON THE CINCINNATI, HAMILTON & DAYTON RAILWAY, AT INDIANAPOLIS, IND., NOVEMBER 13, 1912.

DECEMBER 31, 1912.

To the Commission:

On November 13, 1912, there was a head-end collision between a passenger train and a freight train on the Cincinnati, Hamilton & Dayton Railway, at Indianapolis, Ind., resulting in the death of 11 passengers and 4 employees and the injury of 6 passengers and 5 employees.

An investigation of the nature and cause of this accident and of the circumstances connected therewith developed the following facts:

The trains involved in this collision were westbound passenger train No. 36, running from Cincinnati, Ohio, to Chicago, Ill., and eastbound freight train No. 95, running from Indianapolis, Ind., to Hamilton, Ohio. Train No. 36 consisted of an engine, a mail car, a combination baggage and smoking car, one coach, and two Pullman sleeping cars, all the cars being of wooden construction. Conductor Wiggins and Engineman Sharkey were in charge of this train. Train No. 95 consisted of an engine, 26 loaded and 4 empty cars, and a caboose, in charge of Conductor Hines and Engineman Yorke.

The Cincinnati, Hamilton & Dayton Railway between Indianapolis and the Ohio State line is a single-track line. A manual block system is in operation, so operated as to provide protection for following movements only; permissive movements are allowed for freight trains. In connection with this system, train orders directing the movements of trains are transmitted by telephone.

The collision occurred on the east end of Irvington passing track, in a slight cut, just within the city limits of Indianapolis. The main track is straight for a distance of about 2 miles east and about 1 mile west of the point where the accident occurred, and there is a slight descending grade for eastbound trains beginning about 2 miles east of the point of collision.

On the morning of the accident freight train No. 95 left State Street yard, Indianapolis, at 1 o'clock, and just before reaching Irvington, 3¼ miles from State Street, stalled on a grade of about 1 per cent. Conductor Hines cut his train in two, and with the

engine and 14 cars proceeded to Irvington and headed into the west end of the siding. When these cars were clear of the main track Head Brakeman Gross, acting under instructions from Conductor Hines, cut off the engine and let it out on to the main track at the east switch in order that it might return for the remainder of the train. Brakeman Gross then continued east to flag train No. 36.

The engine picked up Conductor Hines at the west end of the side track and returned to the part of the train which had been left on the main track, pulled these cars up to the west end of the sidetrack, and left them on the main track just west of the switch. The conductor then cut off the engine, and it proceeded to the east end of the siding, where he opened the switch, and after the engine had backed into the siding he then closed and locked the switch. The engine then coupled to the head portion of the train, and backed it out on to the main track, where the entire train was coupled together.

It was the intention at that time to pull the train into the Irvington passing track for train No. 36, but the crew received an order giving their train until 2.50 a. m. to reach Julietta for that train. Julietta is located about 6 miles east of Irvington. The train then started toward Julietta, but before it had reached the east end of Irvington passing track Engineman Yorke told Conductor Hines, who was riding on the engine, that the train was so heavy that he did not think it could reach Julietta in the time allowed by the order. The conductor thereupon directed him to back the train into the siding and then left the engine, catching the caboose as it came by.

When train No. 95 had pulled east of the switch for the purpose of backing in on the passing track Brakeman Gross climbed up on the engine and asked Engineman Yorke what they were doing. Engineman Yorke told him that they had received an order giving them until 2.50 a. m. to reach Julietta for No. 36, but as they would not have sufficient time, they were going to back in on the siding. He also told the brakeman to stay on the engine and ride in, but Gross replied that he had been instructed by the conductor to protect against No. 36 and to remain out until he was called in and that he would remain out.

Rear Brakeman Cox opened the east switch, and the train was backed in on the passing track, both Conductor Hines and Brakeman Cox riding on the caboose. The train was into clear about 12 minutes before train No. 36 was due at Julietta on the time given in the train order referred to above.

As the train was backing in on the siding the engineman directed the fireman to cover the headlight. After the train stopped on the sidetrack Engineman Yorke sounded the whistle signal recalling Brakeman Gross, at which time the fireman was covering the headlight. Engineman Yorke stated that he then lighted a torch,

climbed down from the engine, and started toward the switch for the purpose of closing it. About 150 feet from the engine, however, he met Brakeman Gross coming in and asked him if he had closed the switch. He stated that Gross replied, "Yes; the switch is closed all right." He and Gross then started to return to the engine. The rear brakeman came up at that time and asked Gross if the switch was closed, and the engineman says Gross replied, "Yes; the switch is closed." The rear brakeman then returned to the caboose and the engineman and head brakeman returned to the engine, where they remained until the collision occurred.

After sending the rear brakeman forward to make sure that the switch was closed Conductor Hines went to the telegraph office for orders. This office is located at the west end of the passing track, 25 or 30 car lengths to the rear of the caboose of his train as it stood on the siding.

Passenger train No. 36 left Cincinnati at 11.25 p. m., November 12, on time, and was 52 minutes late at 3 a. m., November 13, when it passed Reedville, Ind., the last open telegraph station west of the point where the accident occurred. Reedville is 13 miles from Irvington, and train No. 36 traveled this distance in 17 minutes. The east switch at Irvington passing track had not been closed, and as the switch lamp was not burning there was nothing to indicate the position of the switch to the approaching train. Train No. 36 entered the siding at an estimated speed of 45 miles an hour, colliding with train No. 95 at 3.17 a. m.

Both engines were badly damaged and four freight cars were destroyed. Both engines and the three head cars of the passenger train were derailed, but remained upright. The mail car and the combination car were damaged and the coach was telescoped by the combination car. Most of the casualties occurred in the coach; nearly everyone in it was either killed or injured.

At the investigation conducted by the railroad company Brakeman Gross stated that after the train had backed in on the passing track he was called in. He saw a light near the switch and supposed someone was closing it; the headlight was covered, and he assumed that everything was all right. In coming in he walked around the switch stand, but did not observe carefully the position of the stand or the switch points; he thought the switch was closed. He was carrying a red and a white lantern, and the light was not very good. He met Engineman Yorke a short distance in front of the engine. Yorke asked him if the switch was closed, and he replied that it was. At the investigation conducted by the coroner Brakeman Gross stated that as he approached the engine someone asked him if the switch was all right, and he replied that it appeared all right to him.

At the investigation conducted by the Railroad Commission of Indiana the engineman stated that he saw the headlight of the passenger train when it was about a mile away. When he saw it head into the siding he called to the other men in the cab and jumped from the engine. He stated that the passenger train was running at a high rate of speed; the engine was using steam and fire was flying from the stack.

At the company's investigation Flagman Cox stated that when the train backed in on the passing track Conductor Hines asked him to go forward and see if the switch was closed. He went forward and met Engineman Yorke and Brakeman Gross just in front of the engine. He stated that he said to Brakeman Gross, "Did you close that switch?" and Gross replied, "Yes." He then returned to the caboose.

The switch stand at the east end of the Irvington siding is located on the south side of the track and the switch lamp is 7 feet above the roadbed. The lamp in use at the time of the accident was equipped with a long-time burner, and would burn about eight days without refilling. The section foreman who had charge of this lamp stated that it was his custom to give it attention twice a week, on Wednesday and Saturday. He stated that he had inspected this lamp and found it burning the afternoon preceding the accident. It was also reported as burning at about 5.10 in the evening before the accident. Between that time and the time when the accident occurred three train crews had reported that this lamp was not burning. When the lamp was examined after the accident the reservoir was half or two-thirds full of oil. During the night the wind was blowing and a drizzling rain was falling, but at the time of the accident the rain had ceased and the weather was clear.

The engine crew on train No. 95 had been on duty 3 hours and 32 minutes, and the train crew had been on duty 3 hours and 17 minutes, after a period off duty of more than 12 hours. The engineman of train No. 36 had been on duty 4 hours and 32 minutes after a period off duty of 8 hours and 30 minutes.

This accident was caused by the failure of Engineman Yorke, of train No. 95, to close the east passing track switch at Irvington, or to make sure that this switch was closed after his train backed in on the siding, thus violating that part of rule 104–A of the Cincinnati, Hamilton & Dayton Railway Co., which reads as follows:

> When a train backs in on a siding to meet or to be passed by another train, the engineman, when his train is into clear, must see that the switch is properly set for the main track.

Head Brakeman Gross, of train No. 95, is equally responsible for the accident on account of his failure to see that this switch was properly closed when he returned to the train after being called in

by the engineman, and for erroneously stating that the switch was closed when asked about it by the engineman and the rear brakeman.

Engineman Yorke exercised poor judgment in recalling the flagman before the switch had been closed. At the time the engineman sounded the whistle recalling the flagman train No. 36 was not due at Julietta, 6 miles away, for about 12 minutes, and Engineman Yorke had ample time to close the switch before recalling the flagman. He should not have permitted the headlight to be covered until the switch was closed.

It is further believed that the entire crew of train No. 95 displayed a lack of alertness in the exercise of their duties, for the reason that the conductor and both brakemen operated this switch, and all the members of the crew had occasion to note that the switch lamp was not burning, but none of them lighted it. Had the switch lamp been lighted the accident undoubtedly would have been averted, as any member of the crew could have discovered at a glance that the switch had not been closed, or the engineman of the passenger train might have seen the switch light in time to bring his train to a stop before reaching the open switch.

Rule No. 27 of the Cincinnati, Hamilton & Dayton Railway Co. reads as follows:

> A signal imperfectly displayed, or the absence of a signal at a place where a signal is usually shown, must be regarded as a stop signal and the fact reported to the superintendent.

A footnote in the book of rules states that—

> The definition of a "fixed signal" covers such signals as slow boards, stop boards, yard limits, switch, train order, block, interlocking, semaphore, disk, ball, or other means for indicating stop, caution, or proceed.

Under this rule and definition it is clearly required that the absence of a switch light at night be regarded as a stop signal. The superintendent of this division stated, however, that rule No. 27 had not been interpreted to cover switch lights, and that train crews were not expected to stop for switch lamps which were found not burning, but were required simply to report such switch lamps.

In approaching this switch Engineman Sharkey, of train No. 36, was following the customary practice when he did not stop his train or approach the switch with his train under control.

The investigation disclosed the fact that on this railroad switch lamps are frequently found not burning. The chief train dispatcher stated that each night on this division four or five switch lamps are reported not burning. This seems to indicate either that the lamps do not receive proper attention or that they are inadequate. The rules of the company do not require employees to light lamps found not burning. The east switch at Irvington was operated by the con-

ductor and by both of the brakemen, but none of them considered it his duty to light the lamp, as the rules require lamps found not burning merely to be reported.

The records of the company show that trains frequently were compelled to double into Irvington, the first station reached after leaving the terminal. On 16 occasions during the 60 days preceding this accident trains had doubled into Irvington, and engine No. 426, which was hauling this train, had doubled into this passing track 7 times out of this total of 16, and on only one trip did it have a full tonnage rating; on the date of the accident it had 99 tons less than the full tonnage rating. Evidence was also introduced showing that the coal used was poor, and that regardless of the fact that the reports on engine No. 426 showed it to be in good steaming condition, the engine was unable to handle the train.

The conductor had had about 12 years' experience as a brakeman and 2 years' experience as an extra conductor. The engineman had just been promoted and had made but six trips over the road; he had had 4 years' experience as a fireman. The head brakeman had been in the employ of the company 19 days, and had had only 2 months' previous experience as a switchman. The rear brakeman had about 2½ years' experience as a brakeman, 1 year and 3 months of which was on this road. The fireman was making his first trip over this road, but had had 11 months' experience on another road. The engineman had been assisting the fireman in the care of his fire, and after being told by Brakeman Gross that the switch had been closed, he returned to the engine to work on the fire in an effort to get the engine to steam properly.

The conductor did not go forward personally to ascertain whether or not the switch was closed, as he desired to go to the office and inform the train dispatcher that on account of the heavy train they had not attempted to reach Julietta and had backed in on the siding at Irvington. He therefore delegated the rear brakeman to go to the head end of the train to see if the switch was closed.

The accident occurred within the city limits of Indianapolis, and the speed limit there is 30 miles an hour. Had this speed limit been observed the consequences of the collision would have been less disastrous. The investigation, however, disclosed the fact that trains frequently exceeded the speed limit at this point.

The engine of the passenger train had been equipped with an electric headlight, but about two months before the accident this headlight was removed for repairs and had not been replaced. Had this engine been equipped with an electric headlight the engineman might have been able to discover the position of the switch in time to avert the collision.

The operating conditions disclosed by this investigation should be materially improved in an effort to prevent the recurrence of such accidents.

Measures should at once be taken to provide that switch lamps be kept burning at night, and that employees be required to obey the rules in the absence of a switch light. In addition to reporting switch lamps found not burning, any employee who uses switches at night on which the lamps are not burning should be required to light them.

It can not be considered safe practice to require or permit a train to be operated over a busy railroad by a crew all of whom on the head end of the train are inexperienced or new men, and in all cases where newly promoted enginemen are used an experienced fireman should be furnished.

The tonnage rating of engines should be fixed so that an engine can haul a train over the road without being required frequently to double hills. When trains are required frequently to double hills, the attention of employees, anxious to make reasonable time and to avoid delaying other trains, is diverted from their usual duties, and ordinary precautions are overlooked. Under these circumstances there are unusual opportunities for disastrous errors to occur.

Attention is also called to the fact that had automatic block signals, or any form of signals employing continuous track circuits, been in use the open switch would have been indicated by such signals and, had they been obeyed, the accident would have been averted.

Respectfully submitted.

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Chief Inspector of Safety Appliances.

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